Week 10: Meiosis BIOL 101: General Biology I  LEARNING OBJECTIVES		
INT	RODUCTION	
and We	I division in eukaryotes is observed in everyday life (cell repair, replacement, and growth) in a process known as mitosis, in the production of gametes for the next generation in a process known as meiosis. Today we will focus on meiosis. will work together to understand the terminology and processes associated with your gamete cells and how they are to produce cells viable for fertilization and reproduction.	
ACT	FIVITY, DATA COLLECTION & ANALYSIS	
Me	iosis in Eukaryotic Cells	
1.	Why do eukaryotic cells divide by mitosis AND meiosis?	
2.	What are the key differences between mitosis and meiosis? (don't think stages here – but rather unique products)	
3.	Do you remember the difference between homologous chromosomes and sister chromatids?	
4.	Why do you think variability in gamete cells is critical to evolution of a population?	
Me	iosis – Hands on!	
W/o	orking with a partner, find your cell division activity bag provided by your instructor. In the bag, you will find the owing: 12 pipe cleaners (2 of each – orange, black, long white, red and white striped, short white, and green); 16	

For this activity, you will follow along with your instructor through the stages of meiosis – <u>please do not work ahead!</u> We recommend working through meiosis on your desk top and add notes / other important information to your white board.

with spindle fibers

Pipe cleaners = chromosomes (homologous chromosome pairs = orange + black, long white + red and white striped, short white + green); shaped beads = alleles; round beads = centromeres; yarn = nuclear envelope; elastic bands = centrosomes

## Week 10: Meiosis

BIOL 101: General Biology I

At each stage, STOP!! and take a picture of your setup along with what you have written on your white board! Complete

the table below with your observations from our hands on activity. Meiosis I Make sure you distinguish Late Prophase I the difference between chromosomes inherited via the egg and those from the sperm during the production of you as a Metaphase I zygote! Maybe pen vs. pencil as you are drawing? For each circle, you should Note the # of chromosomes vs. sister chromatids. Anaphase I Telophase I and Cytokinesis I Meiosis II Prophase II Metaphase II Anaphase II Telophase II and Cytokinesis II

DO NOT SUBMIT THIS WORKSHEET. Complete Weekly Quiz #10 in the "Quizzes" tab on myCourses before Friday!		
Week 10: Meiosis BIOL 101: General Biology I		
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STOP H	HERE! Your instructor is going to demo all of these variations, and for clarity of each type, please wait!	
Genetic variation caused by meiosis:		
5.	When and how does recombination occur in gametes?	
6.	What is the primary result of <u>recombination</u> (crossing over) in gametes?	
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7.	If homologous chromosomes do not separate correctly in <u>Anaphase I of Meiosis I</u> , what is the result? Is this	
	positive or negative, or both?	
8.	If sister chromatids do not separate correctly in <u>Anaphase II of Meiosis II</u> , what is the result? Is this positive or	
	negative, or both?	
9.	Think back through all of our discussions of cell division – mitosis and meiosis. What happens if any one of these	
٥.	processes is changed? Faster replication? Slower replication? No replication? How will these changes impact the	
	individual and/or its offspring?	